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EVALUATING CONSTRUCTION ACTIVITIES IMPACTING ON WATER RESOURCES: PART V

GUIDE TO PROTECTING THE AQUATIC ENVIRONMENT DURING SMALL SCALE WATERFRONT CONSTRUCTION PROJECTS

THE ONTARIO MINISTRY OF THE ENVIRONMENT

APRIL, 1986

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PROTECTING THE AQUATIC ENVIRONMENT DURING SMALL SCALE CONSTRUCTION PROJECTS

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FOREWORD

In 1976 the Ministry of Environment published the handbook Evaluating Construction Activities Impacting on Water Resources as an aid in the assessment of the environmental impact of construction activities. Information gained since 1976 now warrants a revision of the original handbook.

The revised guidelines in the handbook have been divided into five parts and are presented as five separate publications, as follows:

Evaluating Construction Activities Impacting On Water Resources:

Part I	Guidelines for construction of hydrocarbon transmission and distribution pipelines crossing water courses (March, 1984);
Part II	Guidelines for construction of highways and bridges (March, 1984);
Part III	Guidelines for dredging and dredged material disposal (1986)"
Part IV	Guidelines for marine construction projects (April, 1986);
Part V	Guidelines for small scale waterfront projects (April, 1986).

This Part V set of guidelines has been developed to aquaint anyone contemplating waterfront construction with approval requirements and environmental concerns related to small scale, water-related construction projects.

INTRODUCTION

It is important to be aware of the problems that can be created by construction along a waterfront. The Ministry of the Environment (MOE) is concerned that landowners, on occasion, inadvertently create situations in which the shoreline environment is damaged as a result of the changes that occur following attempts to undertake water-related construction projects. Small scale projects such as the construction of docks, boathouses, boat launching ramps, beach stabilization, water intakes or other similar projects which involve modifying the shoreline or foreshore areas can generate adverse impacts which degrade the quality of the shorefront environment.

Usually, a waterfront construction project will generate some water quality impairment during the actual construction period and long-term impacts may also result. These impacts can vary significantly depending upon the precautions that are taken in the planning and construction of the project.

On most projects, there will be some short-term turbidity (muddy water) as a result of the movement of cover material, sediments and disturbance to the working area. If adequate precautions are not taken to revegetate and stabilize the site following construction, a long-term erosion problem may be created. This results in an on-going contribution of sediment to the aquatic system.

MAINTAINING SUITABLE WATER QUALITY

Many uses are made of lakes, rivers and streams throughout the Province of Ontario. Generally, these uses are dependent upon having an adequate supply of good quality water.

*The Ministry of the Environment's surface water quality managment goal is "to ensure that the surface waters of the province are of a quality which is satisfactory for aquatic life and recreation".

In general, water which meets the water quality criteria for aquatic life and recreation (which include such uses as swimming and bathing as well as supporting a healthy fishery) will be suitable for most other beneficial uses such as drinking water and agriculture.

The water quality objectives established by the Ministry of the Environment to accomplish the preceding beneficial uses are a set of narrative and numerical criteria designed for the protection of aquatic life and recreation in and on the water. These are known as the Provincial Water Quality Objectives (PWQO). Copies of these objectives are published in "Water Management - Goals, Policies and Implementation Procedures" (MOE, May 1984) and can be obtained from local MOE offices.

Various aspects of federal and provincial legislation apply to water-related construction activities and proponents must ensure that all necessary approvals for a project have been obtained before starting construction. A call to the local MOE or MNR office will start the process.

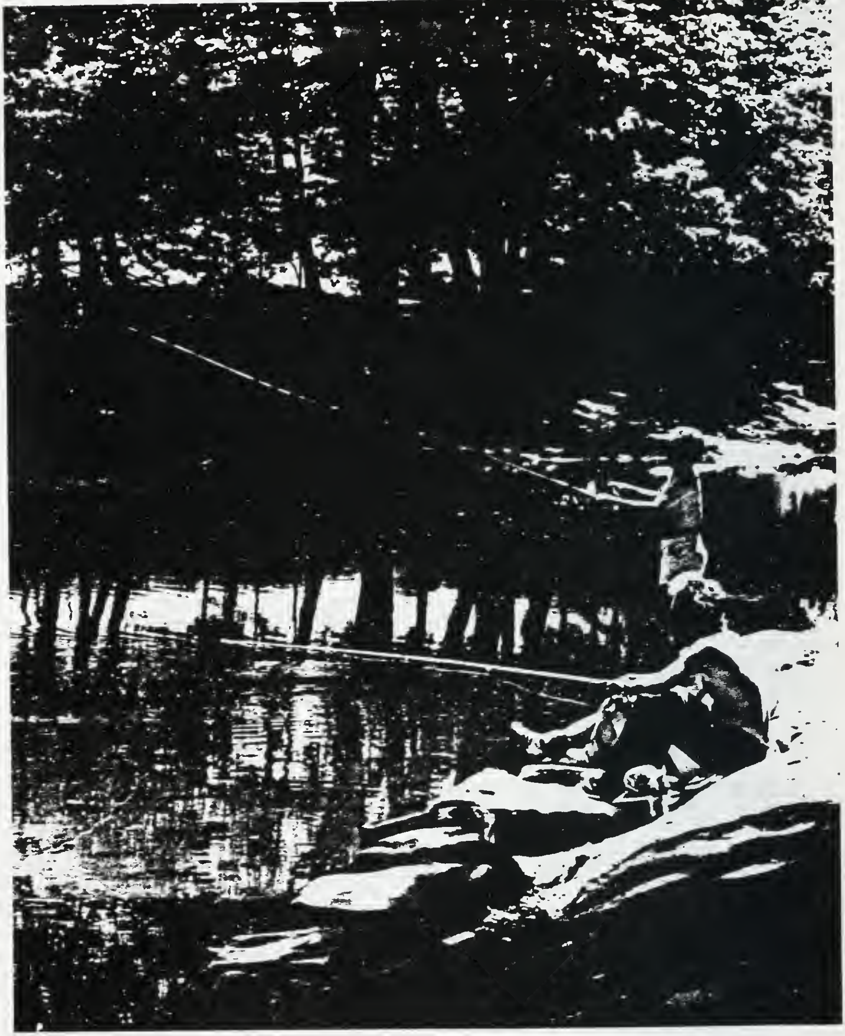
HOW TO MINIMIZE IMPACTS OF WATER-RELATED CONSTRUCTION

A NUMBER OF SPECIFIC PRECAUTIONS CAN BE TAKEN TO MINIMIZE THE WATER QUALITY IMPACT OF A CONSTRUCTION PROJECT.

*Projects in recreational areas should be undertaken outside of the peak recreational season. (June-August)

*Projects in fish spawning areas should not coincide with the spawning and hatching time for the species involved. (Contact a local office of MNR for information on fish spawning).

*Projects should be completed in as little time as possible to minimize the period during which soil conditions are unstable and to minimize sediment losses likely to result from storm events.



Owning shoreline property gives immediate access to many recreational opportunities. Protecting water quality while building waterfront facilities protects these opportunities.

SENSITIVE AREAS SHOULD BE IDENTIFIED PRIOR TO UNDERTAKING THE PROJECT

*As part of the overall precautions, the proponent should discuss the proposed project with representatives of the Ministry of Natural Resources and Ministry of the Environment, to obtain as much information as possible concerning the sensitive areas that could be impacted by the proposed project. Marshes, swamps, wetlands, gravel deposits and sensitive wildlife habitat areas should be left undisturbed.

CHOOSE THE MOST SUITABLE EQUIPMENT

*The use of heavy construction machinery should be minimized on streambeds, streambanks and other sensitive areas.

USE OF PESTICIDES AND WOOD PRESERVATIVES

*Use of chemicals for vegetation control will require a permit from the Ministry of the Environment under THE PESTICIDES ACT.

*Generally, chemical control is not recommended for small-scale projects.

*If wood is to be treated with oil, creosote or some other chemical, the treatment should be undertaken some time in advance of placing the material in the water. Three wood preservatives are available to the homeowner: pentachlorophenol (PCP), creosote (CRT) and copper or zinc naphthanate (CNP or ZNP). Pressure-treated wood containing chromated copper arsenates (CCA) can be purchased ready-dried from building suppliers. Label directions should always be followed. In addition, when using these products to protect wood surfaces that contact water, the precautions listed below must be followed in order to minimize any losses of potential pollutants to water.

1) Application of preservatives to wood should not be carried out near or above water.

2) If wood from an existing dock or other structure is to be treated then it must be removed from water prior to treatment and allowed to dry thoroughly before replacing.

3) After drying is completed, all treated surfaces should be scrubbed and wiped to reduce residual oils before placement in water.

4) Do not clean application equipment (i.e. paint brushes, sprayers, etc.) or discard waste in or near surface waters.

Wood treated with a preservative requires the following drying time: PCP - 2 days, CRT - 6 months, CNP or ZNP - 7 days. CRT requires a long drying period and it should not be applied to any surface where body contact is expected and CRT-treated wood should not be placed close to drinking water intakes. CCA treated wood should not be cut over water. (It is recommended that care be taken to ensure adequate personal protection during the use of chemical preservatives e.g. rubber gloves, coveralls, and when working in a confined area, wear an appropriate mask).

The above creek was straightened. Note the rip-rap (large rocks) used to protect the banks from erosion. The trees bordering the creek were planted and will provide wildlife habitat as well as shading the creek.

Docks are one of the more common waterfront facilities built. Supporting the dock with piles, as done in this photo, or by using floats, minimizes the dock's interference with the natural movement of water and sediment.

CONSTRUCTION MATERIALS

*Gravel and sand to be placed within a lake or river should be clean and free from fine materials and organic matter.

*Materials such as cement, lime, oil, gasoline and paints should not be allowed to enter the water.

*When drums are used as floats for a dock, care must be taken to ensure that the drums had not been used for potentially harmful chemicals or that they have been cleaned by someone with facilities to dispose of harmful residues.

EXERCISE CARE DURING DREDGING

*In undertaking any form of bottom material removal, whether it be hand removal of rocks or large volume bottom deposit removal by dredging, there is some sediment loss and turbidity which will affect the areas adjoining the work. It is best to minimize the amount of sediment loss, through care in choosing the type of procedure to be used in the removal of the material and the time during which the material is actually removed. Efforts should be made to undertake dredging during offpeak activity times (e.g. work should not be carried out during the recreational period of June-August) in order to avoid conflict with other water uses.

*In disposing of dredged material, allowance should be made for the considerable quantity of water included in the material.

*Carefully choose a dredged material disposal site that will contain the spoils and not permit seepage back into the water. It may be necessary to spread the material evenly, mulch and seed.

Additional information on the disposal of dredged material can be obtained from the local MOE office.

WHEN THE PROJECT IS COMPLETED

*Immediately stabilize and revegetate any shore areas that have been disturbed.

Large rocks and shoreline vegetation help anchor soil, give property an attractive natural look and help keep water temperatures cool.

APPROPRIATE LEGISLATION

As pointed out earlier several provincial and federal Acts apply to the construction of water-related projects. Some of these are listed below and additional details should be obtained from your local MNR or MOE office.

The Government of Canada Navigable Water Protection Act is administered by Transport Canada and is designed to keep public waterways free for safe navigation. The Act applies when navigable waterways are physically altered through the construction of docks, pipelines or the dredging of channels etc. If a project is undertaken in navigable waters, it is necessary to obtain an exemption from the Act. (Please contact the nearest Canadian Coast Guard Office.)

The Government of Canada Fisheries Act applies to most waterways and lake systems. In Ontario, the Fisheries Act is administered by the Ministry of Natural Resources. This Act establishes requirements for protecting the quality of habitat for the propagation of fish.

The Lakes and Rivers Improvement Act is an Ontario Act administered by the Ministry of Natural Resources. This Act is designed to minimize the risk of flooding or other damage to public or private lands and ensure that the quantity and quality of water passing down the river system is not greatly reduced by modifications or changes made in a lake or river. The Act also specifies the need to minimze destructive effects on fish, wildlife and other aquatic biota.

The Ministry of Natural Resources also oversees the use of public lands which includes land underneath water. With the exception of the bed of federal harbours and canals, all other beds of lakes and rivers in Ontario are administered by the Ministry of Natural Resources. As part of the administration of public lands, the Ministry of Natural Resources requires that persons obtain permission from the Ministry prior to constructing any boathouse, dock or other structure over the bed of a lake or river. In addition, the Ministry requires that permission be obtained for the removal of any sand, earth, gravel, stone or similar material from beaches or from public land and underwater beds.

The Conservation Authorities Act of Ontario assigns a number of responsibilities to conservation authorities. In areas where a conservation authority is established, it is necessary to obtain permission for any fill or construction operation within designated "fill lines" prior to commencing the project.

In some locations, specific commissions have been established to oversee designated areas. For example, the Niagara Escarpment Commission must be consulted to obtain clearance for undertaking projects in the control zone of the Escarpment.

The Ontario Water Resources Act and The Environmental Protection Act, administered by the Ontario Ministry of the Environment, could apply to construction projects. These Acts apply if pollution occurs and damages result to the environment.

Municipal regulations can also be enacted in the form of bylaws and zoning which could affect the type of project that can be undertaken in some areas. You must ensure that all necessary approvals for your project have been obtained.

SOURCES OF ENVIRONMENTAL INFORMATION

The following is a brief description of the type and source of available information relating to the environment.

Agency	Description of Information
Ontario Ministry of Natural Resources	- sensitive areas and special studies reports. - flood and erosion-prone area mapping.
Ontario Ministry of the Environment	- information on water quality. - construction guidelines. - application for pesticides use.
Conservation Authorities	- waterfront development reports and studies.
Federal Department of the Environment	- shore damage data and studies. - flood damage reduction information. - reports on shoreline sediment processes. - data, information and reports on streamflow and stream sediment loadings.

If assistance is required in obtaining the information from any agency, please contact the local Ministry of the Environment office.